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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,496	11/27/2001	Tae-Duk Kim	1594.1017	8100

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STAAS & HALSEY LLP
700 11TH STREET, NW
SUITE 500
WASHINGTON, DC 20001

EXAMINER

SAYOC, EMMANUEL

ART UNIT	PAPER NUMBER
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3746

DATE MAILED: 11/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

C2N

Office Action Summary

Application No.

09/993,496

Applicant(s)

KIM, TAE-DUK

Examiner

Emmanuel Sayoc

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX(6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 200 in Figure 3. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. A reference to collision detection is recommended.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 2-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "the reset maximum amplitude data" in claim (as opposed to page) line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 3 recites the limitation "the junction" in claim lines 12 and 13, and "the detected result" in claim line 20. There is insufficient antecedent basis for these limitations in the claim.

Claim 5 recites the limitation "the differential amplifying unit" in claim line 3, and "the calculation result" in claim line 6. There is insufficient antecedent basis for these limitations in the claim.

6. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The step of presetting a maximum amplitude of a piston of a linear compressor is indefinite. Does presetting occur due to electronic control, compressor structure, or some other physical limitation/capacity of the motor?

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

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(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

8. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Yang (U.S. Pat. 6,176,683 B1).

With respect to claim 1, Yang in Figure 1 discloses a control apparatus for a linear compressor comprising a collision detection unit (600) for detecting collision of a piston with a valve (column 2 lines 7-23), and a microcomputer (700) for determining whether the collision of the piston occurs on the basis of an output signal from the collision detection unit (600) – see column 3 lines 12-33. The microcomputer is analogous to the claimed inventions control unit, and it resets the maximum amplitude data of the piston of the linear compressor when collision occurs – see column 4 lines 58-63, column 5 lines 5-16, and column 3 lines 1-11. The control apparatus further comprises a compressor-driving unit (900) for controlling the maximum amplitude of the piston of the linear compressor under the control of the microcomputer (700).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang as applied in claim 1.

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With respect to claim 2, Yang in Figure 3 shows a flow chart of the prior art control process. Step S05 refers to a previously set control destination stroke, which is analogous to the claimed inventions preset maximum amplitude data. It is inherent that this/these values are stored on a memory storage unit within the microcomputer (700). The figure also refers to a reset control destination stroke in step S03. It is also inherent that this/these values are also stored in a memory storage unit. That fact that these are separate pieces of data implies that separate first and second memory storage units are involved. The term "unit" is interpreted as a specific section or location on a storage device that is comprised of a vast plurality of memory "units." Memory storage that is non-volatile and capable of data reading/writing is inherent in a stable and dynamic control system. See also column 3 line 5 regarding the storage of data.

With respect to claim 6, Yang in Figure 3 and 4 disclose a method of controlling a linear compressor comprising, a) presetting a maximum amplitude of a piston of the linear compressor (S05, S16), b) detecting a signal when the linear compressor operates (S01, S11, S12 column 5 lines 30-34), c) determining whether any collision of the piston has occurred on the basis of the detected signal (S02, S13 column 4 lines 49-57), d) resetting the maximum amplitude if it is determined that a collision of the piston has occurred (S03, S14), and e) driving the linear compressor according to the reset maximum amplitude (S04, S15).

Allowable Subject Matter

11. Claims 3-5 and 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to further show the state of the art with respect to collision detection and control systems for linear compressors/motors.

U.S. Pat. App. 2002/0064461 A1 to Yoo et al.

U.S. Pat. 6,074,172 to Huang

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Contact Information

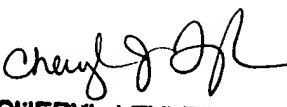
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Sayoc whose telephone number is (703) 305-0054.

The examiner can normally be reached on M-F 8 A.M. - 6 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thorpe can be reached on (703) 308-0102. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.


Emmanuel Sayoc
Patent Examiner
Art Unit 3746


CHERYL J. TYLER
PRIMARY EXAMINER
11/15/02

ECS
November 15, 2002